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GB 283484
US 4033358 A
US 889207 A
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A2M
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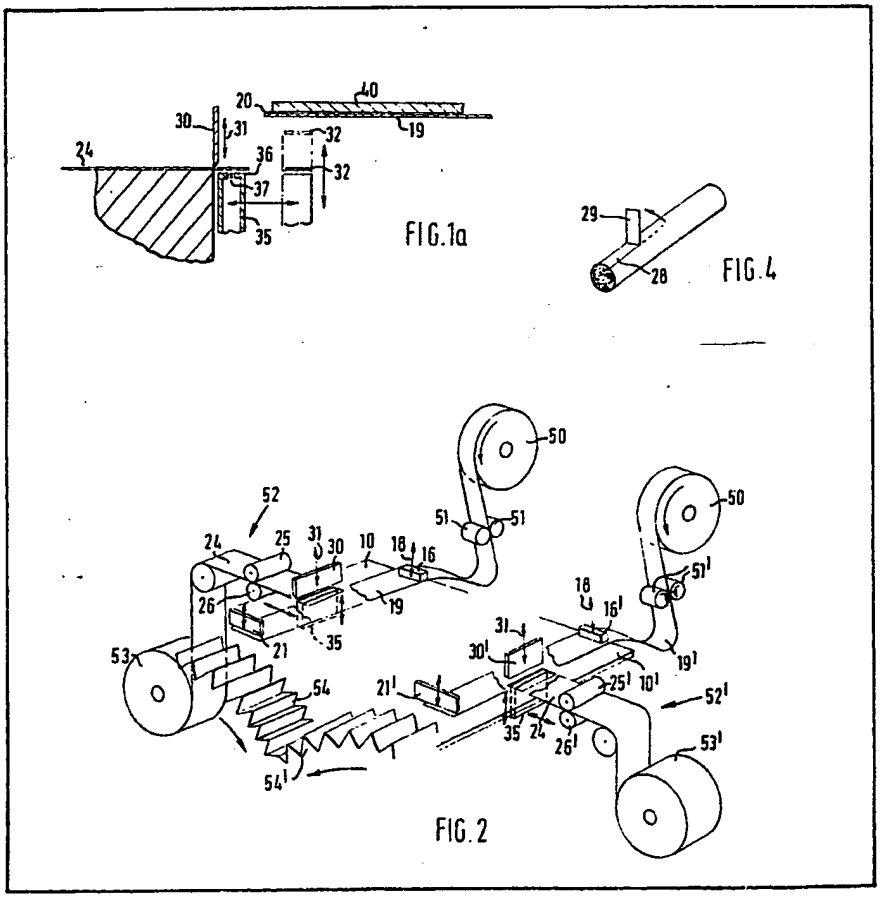
(54) **Cigarette papers incorporating holders**

(57) Method and apparatus is provided for automatic high speed manufacture of cigarette papers provided with a strip of incombustible foil directed longitudinally of the cigarette paper and secured to the uncoated face of the paper adjacent the glued edge, or between the glued edge and the medial longitudinal line of the cigarette paper. Only a portion of the strip is adhesively secured to the cigarette paper and the remainder of the strip may be bent away by the smoker after the cigarette has been rolled to form a pre-attached holder therefor.



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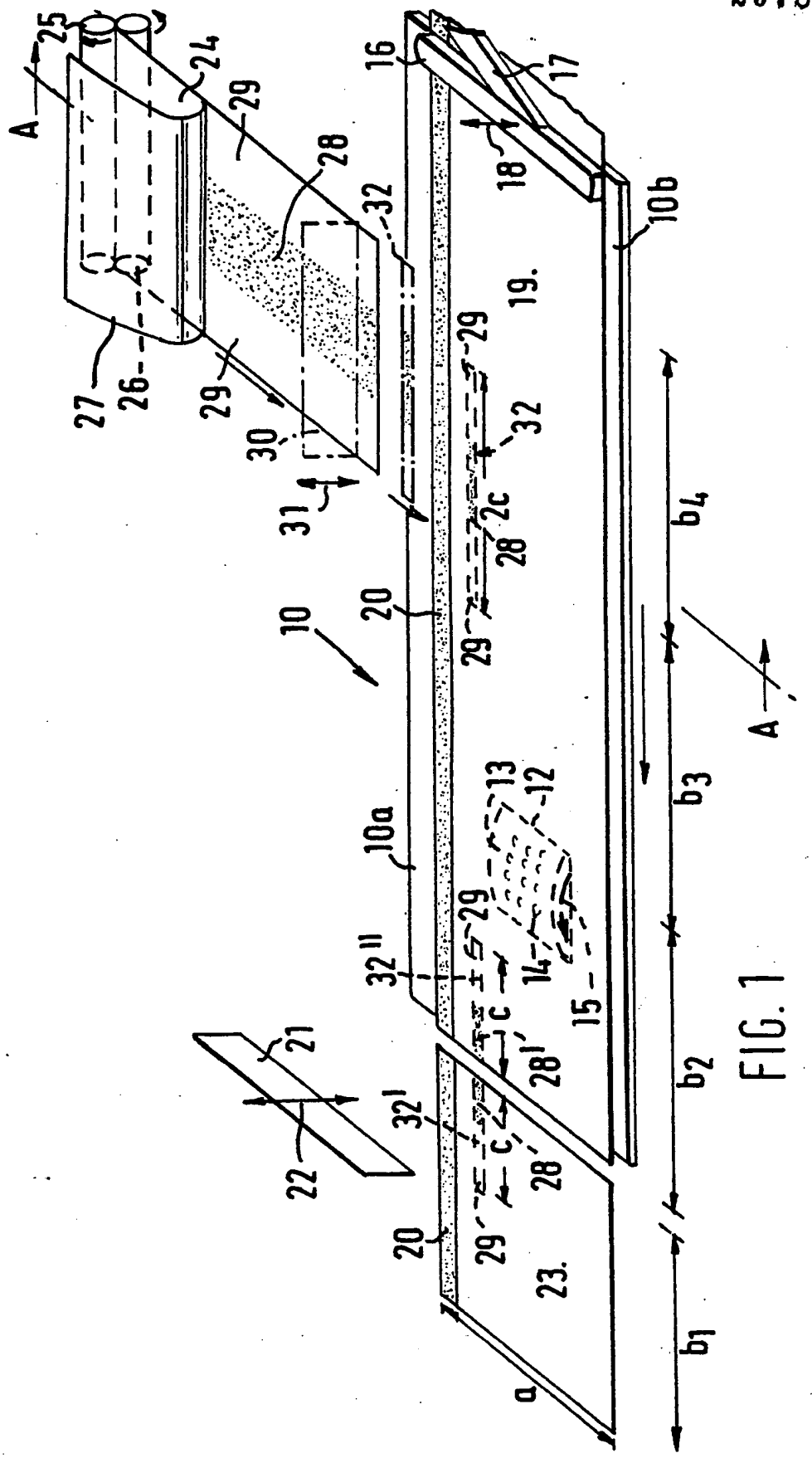
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FIG. 1

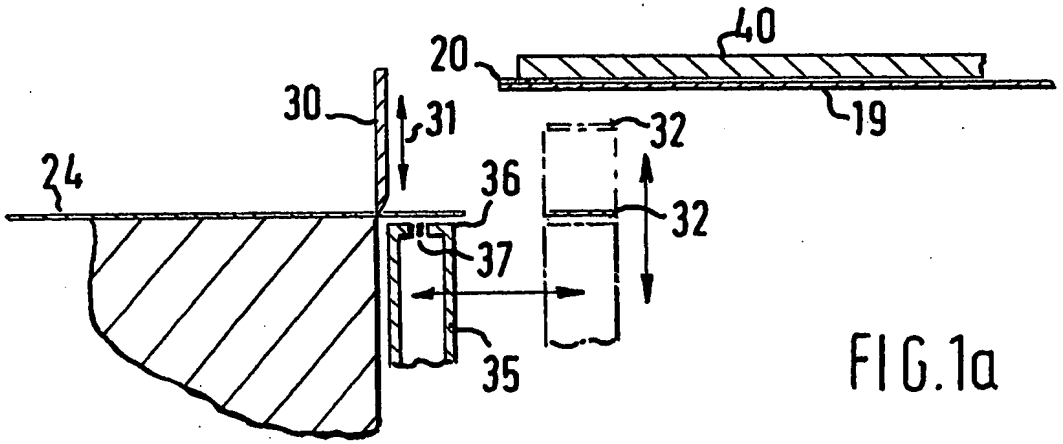
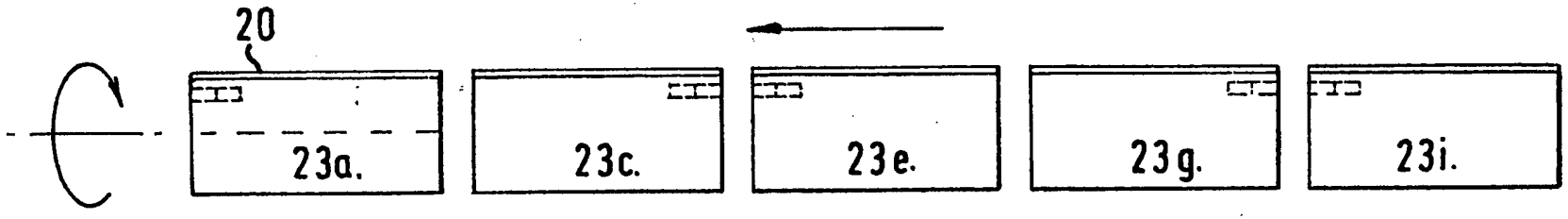


FIG.1a



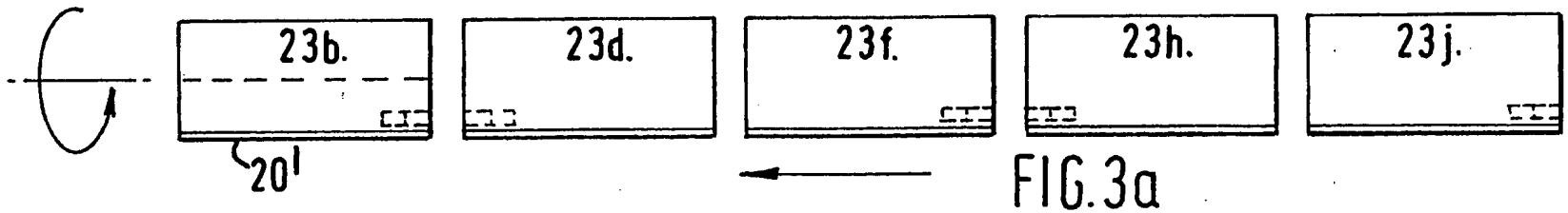


FIG.3a

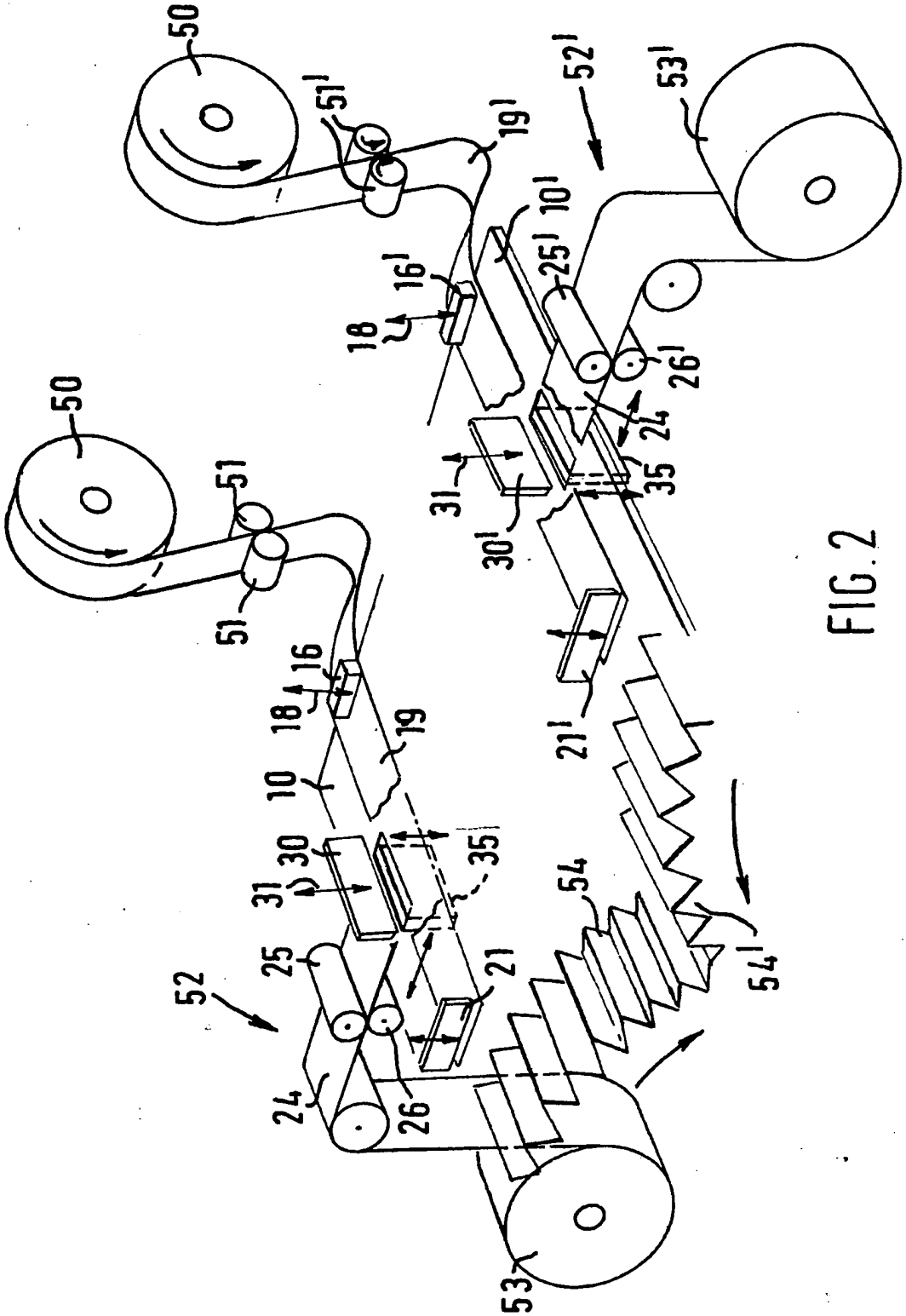

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FIG. 2

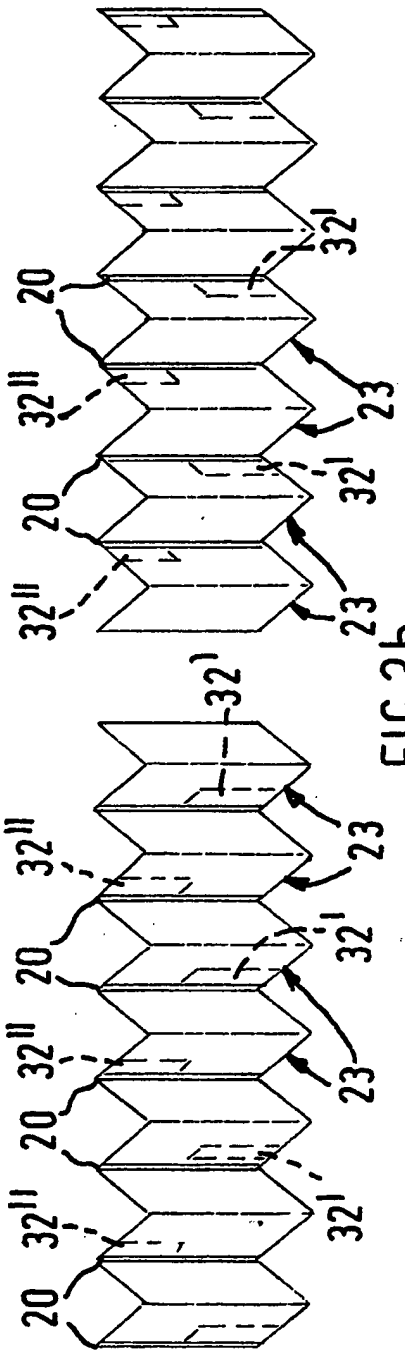

FIG.3b

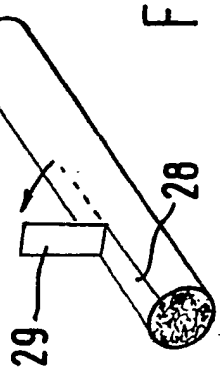

FIG.4

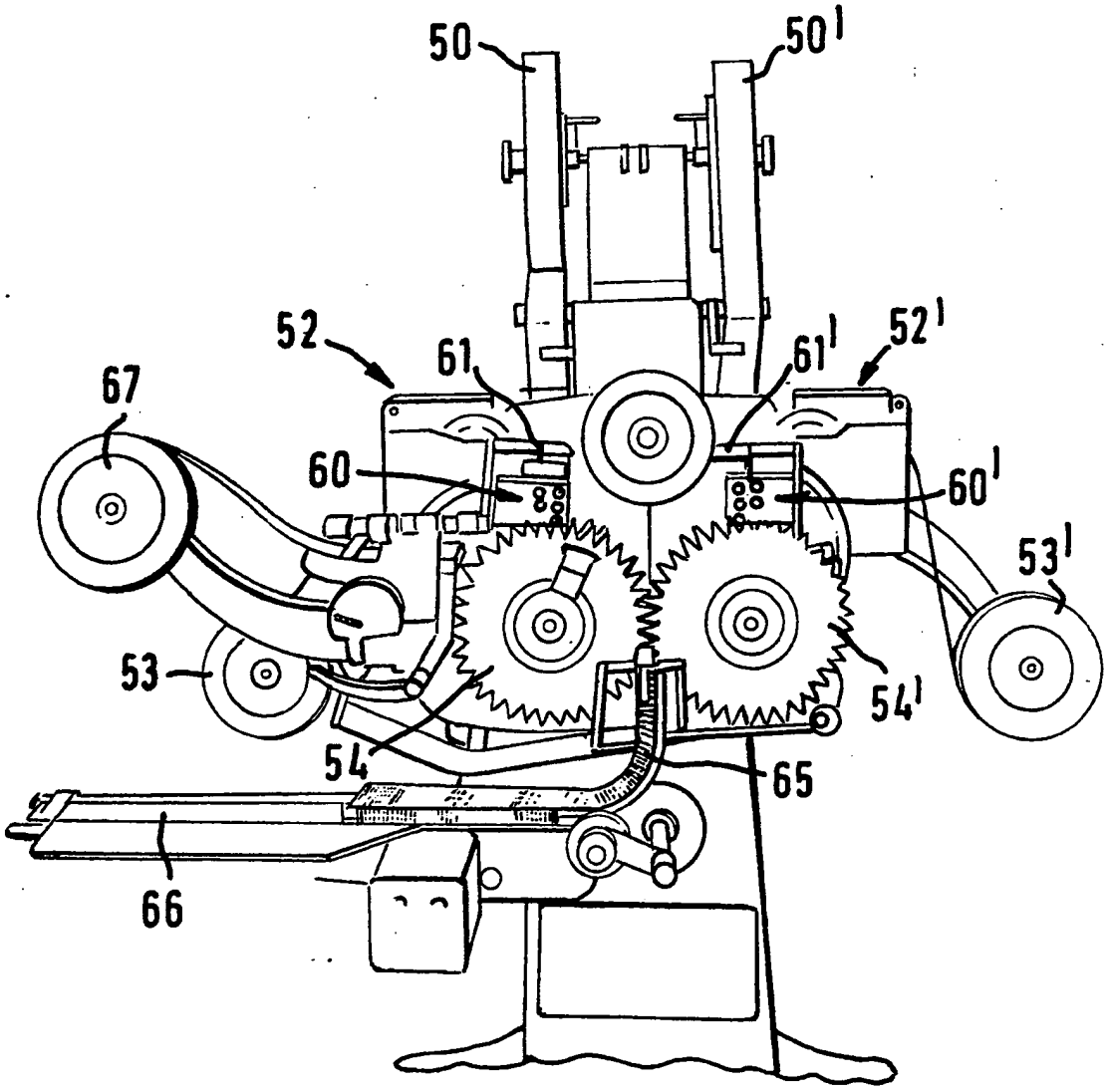

FIG.5

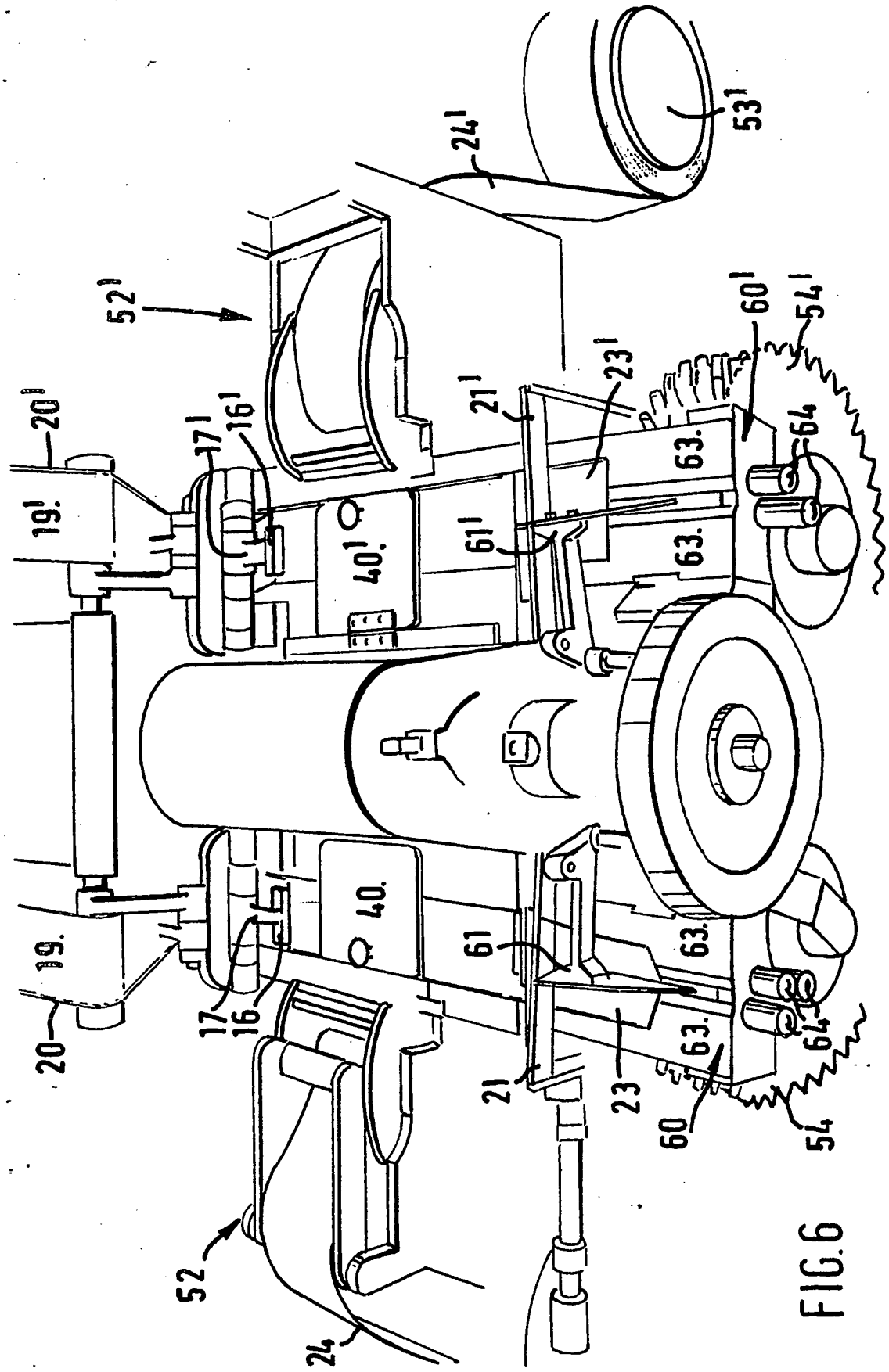
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FIG.6

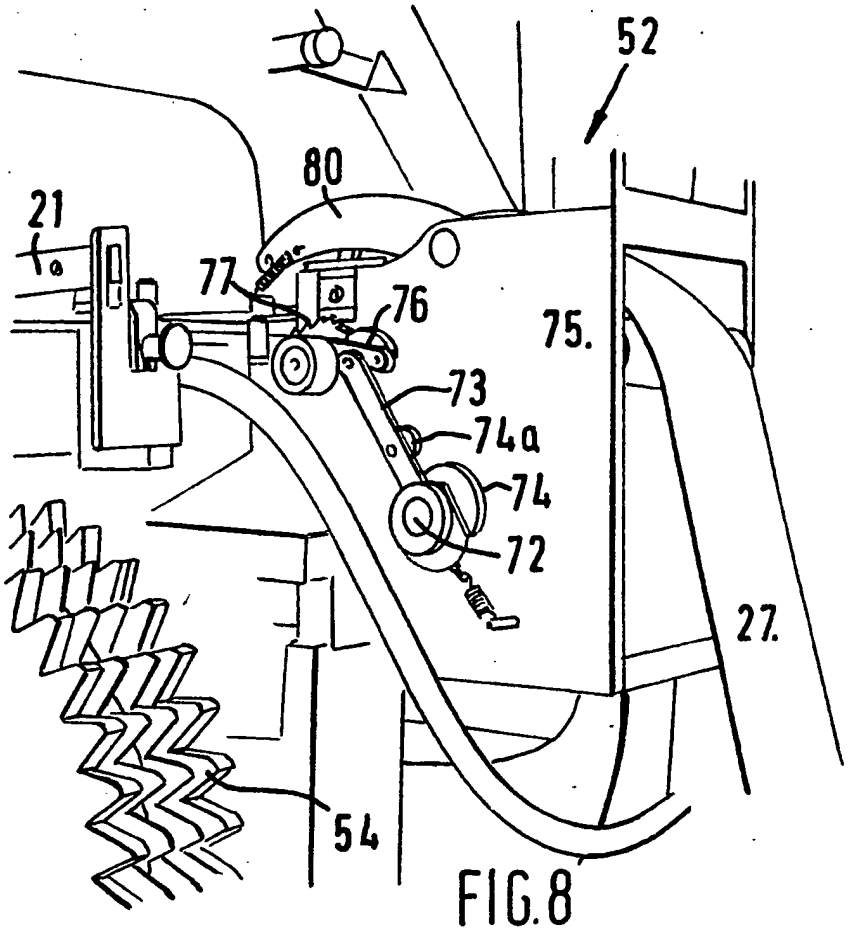


FIG.8

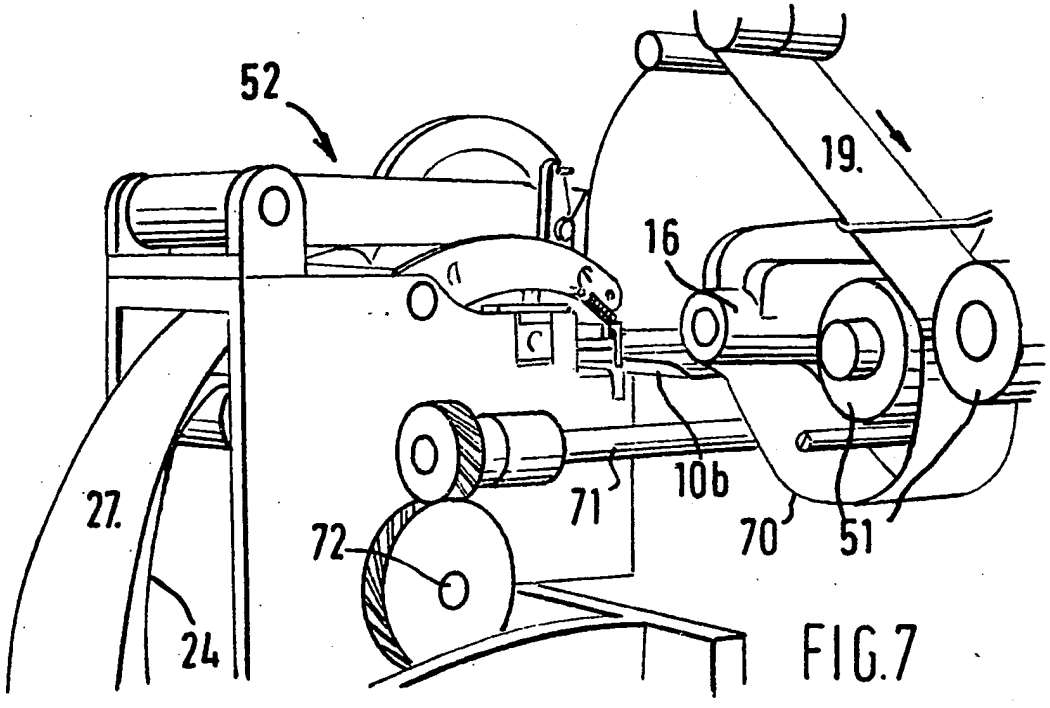
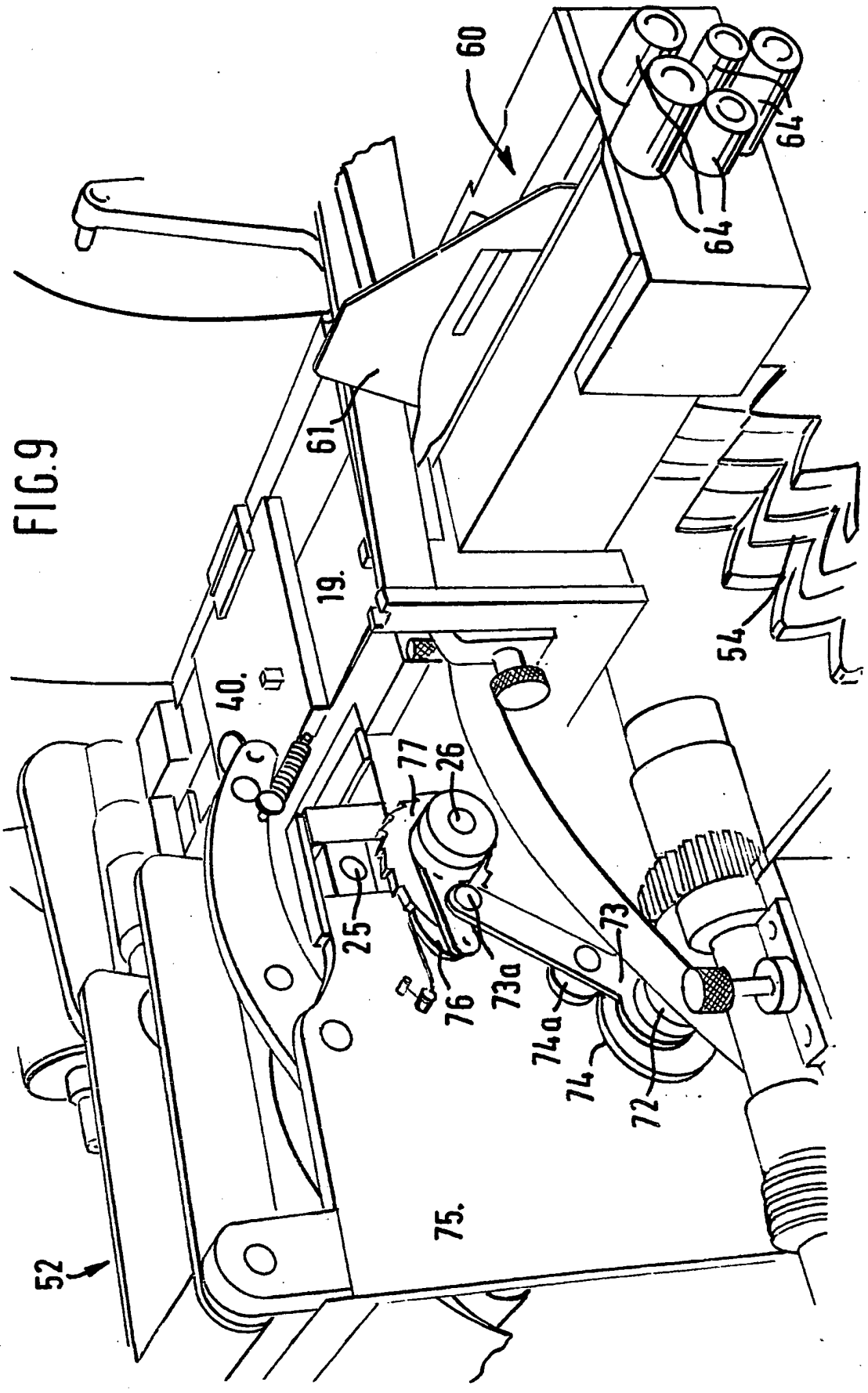


FIG.7

FIG.9



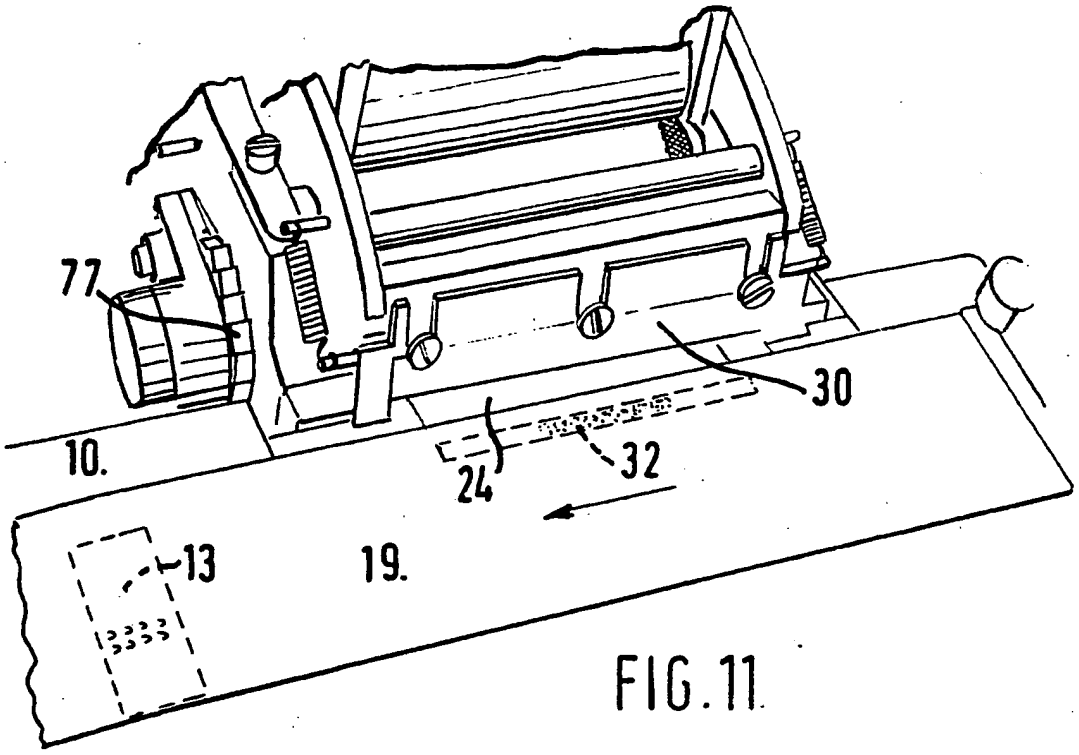


FIG.11

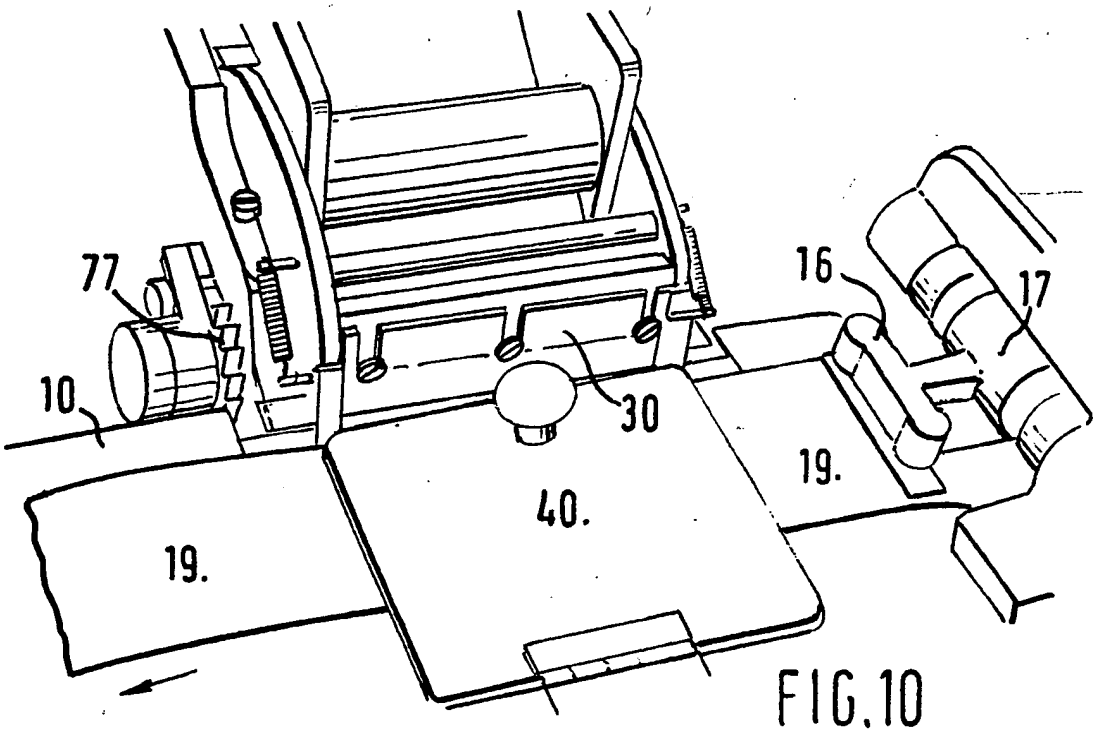


FIG.10

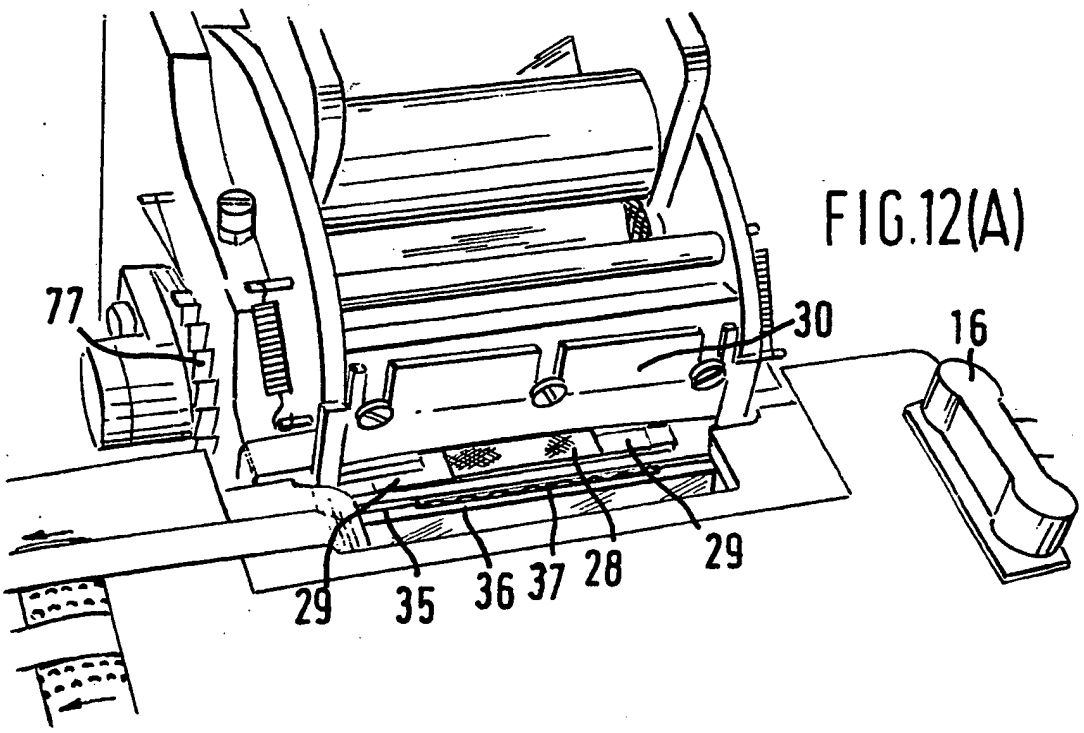


FIG.12(A)

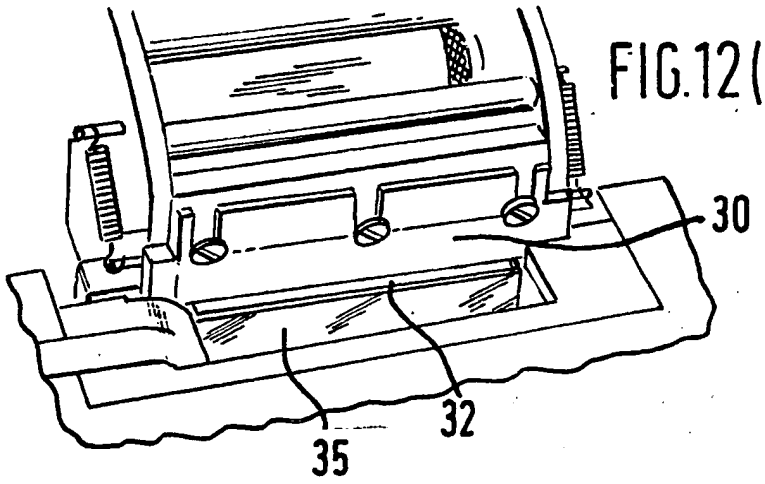


FIG.12(B)

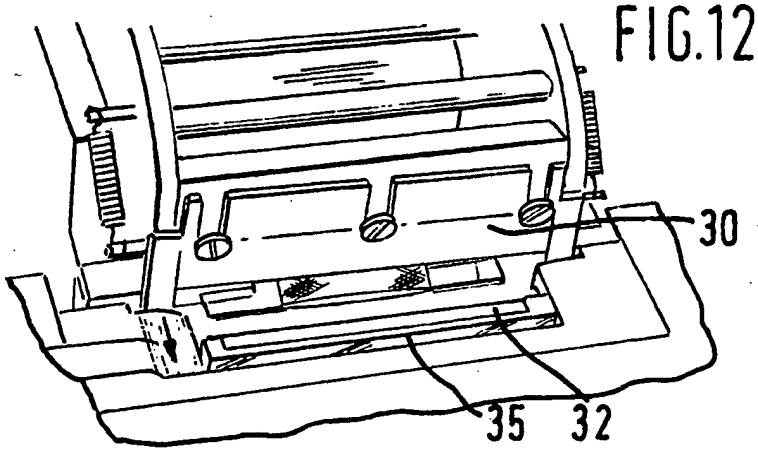


FIG.12(C)

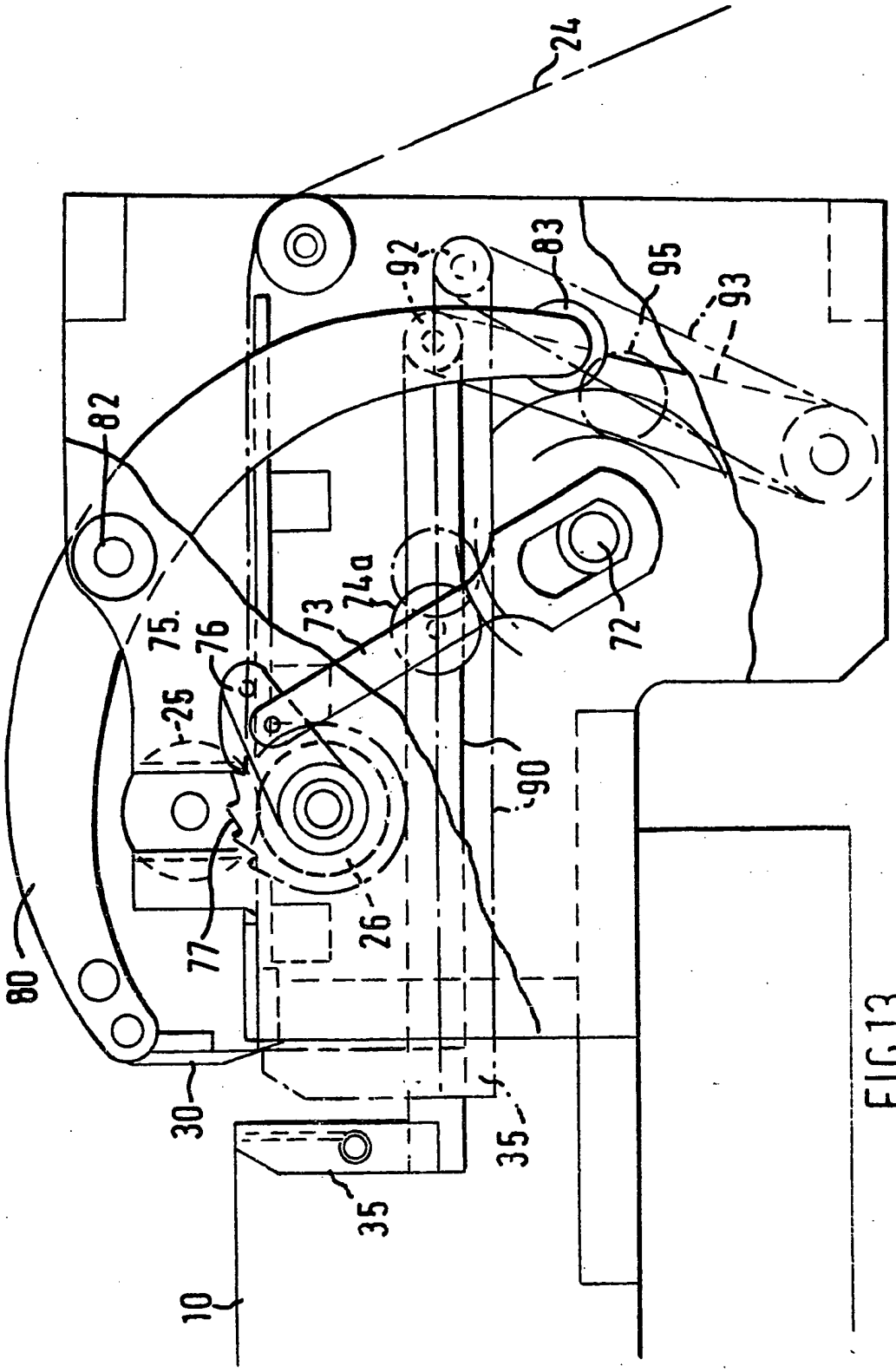


FIG.13

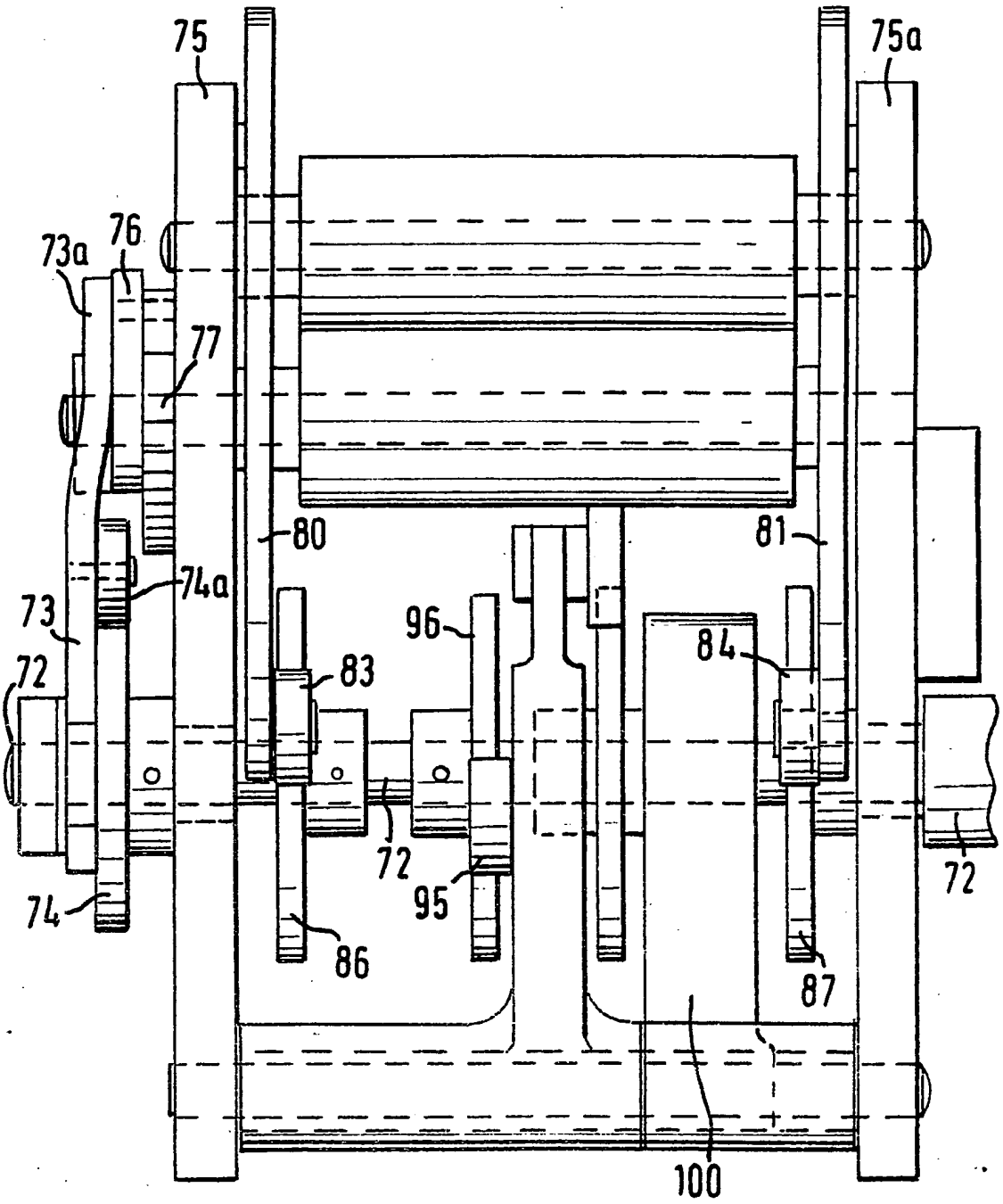


FIG.14

SPECIFICATION

Improvements in the manufacture of cigarette papers

The present invention relates to a method and to an apparatus for making cigarette papers having strips of material adhered at one end to an end of the cigarette paper and unattached at the other end. When a cigarette is rolled from a cigarette paper as aforesaid, the unattached portion of the strip can be folded back to define a ready-attached handle for the cigarette which enables the cigarette to be smoked with reduced discoloration of the fingers of the smoker and if desired enables the cigarette to be almost entirely consumed.

U.S. Patent No. 889,207 (Crane) which dates from 1908 claims, in combination with a cigarette, a strip of paper adapted to encircle the end of the cigarette to be applied to the mouth of the smoker having formed therewith at its right extremity, when gummed in position at the end of the cigarette, a strip of reduced width and extending at right angles to the first strip and adapted to serve the purpose of a holder for the cigarette. There is no evidence known to the applicants that the Crane proposal was ever exploited commercially and it is not believed that cigarettes provided with Crane's in-built holders are now an item of commerce. This is not surprising since cigarettes and indeed cigarette papers for hand-rolling are mass-produced items and Crane suggests no way in which his product could be mass-produced. Furthermore, Crane gives no indication that his holders could or should be applied to hand-rolling papers as opposed to finished cigarettes.

More recently U.S. Patent No. 4033358 (Harrington) has disclosed a cigarette paper having a built-in holder in the form of a stainless steel wire or other thin incombustible support integrally secured to the cigarette paper so that it becomes exposed as the cigarette is smoked to provide a holder for supporting the cigarette. Although Harrington shows a way in which the wire can be continuously adhered to a web of cigarette paper, the resulting cigarette papers cannot be interleaved mechanically inter alia because the wires are prone to distortion and it is not clear that there is any way other than by hand packaging of making the Harrington papers into the interleaved booklets familiar to those who roll their own cigarettes. Furthermore, Harrington's wires are prone to become coated with ash which is inconvenient and dirty for the smoker.

There is therefore an unfulfilled need for a cigarette paper with a ready-attached handle which is clean and convenient to use, and which can be made and packed on high speed machinery and it is an object of the invention to satisfy this need.

Automatic high-speed machinery for cutting individual cigarette papers from lengths of web wound onto bobbins, creasing the cigarett papers and interleaving them is available commercially. Various aspects of such machinery are described in U.K. Patent Nos 495950, 476036, 442716 and 396273 and it is a further object of the invention to enable cigarette papers having in-built handles to be made on machinery of this kind.

In one aspect, the invention provides a method for making generally rectangular cigarette papers by cyclically advancing a web of cigarette paper from a supply bobbin through a cutting station until a predetermined portion of the web protrudes, interrupting the advance of the web and cutting off the protruding portion of the web to form a cigarette paper, the improvement which comprises contacting one face of the web while the advance of the web is interrupted with elongate strips of material coated along part of their length with adhesive so that the adhesive coated portion of each strip attaches thereto and an uncoated portion remains unattached, the strips being directed parallel to the major dimension of the cigarette papers and positioned adjacent an end thereof intended in use to constitute the mouth end of the cigarette, so that the unattached region of the strip can be bent away from the cigarette to form a ready-attached holder therefor.

In a second aspect the invention provides an apparatus for making generally rectangular cigarette papers having ready attached holders, comprising:

a supply bobbin for a web of cigarette paper;

a cutting station for the web of cigarette paper;

means for advancing the web of cigarette paper through the cutting station;

means for cyclically interrupting the advance of the web so that the cutting station can cut off the protruding portion of the web to form a cigarette paper;

means for contacting elongate strips of material coated with adhesive along part of the length with one face of the web while the advance of the web is interrupted so that the strips are directed generally parallel to the major dimension of the resulting cigarette papers and the adhesive coated regions of the strips become attached to each cigarette paper adjacent one end thereof intended in use to constitute the mouth end of the cigarette so that the unattached portion of the strip can be bent away from the cigarette to form a ready-attached handle therefor.

In a third aspect the invention describes an apparatus for making interleaved booklets of cigarette papers each having a strip of material adhered at one end to an end of the cigarette paper and unadhered at the other end so that the strip can be bent away from the cigarette paper to form an integral holder therefore, comprising:

supply bobbins for first and second webs of cigarette paper each having an ungummed face and a face gummed along one edge;

means for advancing said first and said second webs of cigarette paper with their gummed edges facing upwardly and outwardly over a first platform and over a second platform parallel to said first platform;

first and second cutting stations at the end of th

first and second platforms through which the web of cigarette paper is advanced;

means for cyclically interrupting the advance of said first and sec nd w bs ov r their r spectiv platforms so that the first and second cutting stations can cut off a length of web protruding therefrom to f rm a cigarette paper;

means for forming longitudinal creases in cigarette papers cut from the first and second webs and for feeding them serially into notches of a respective one of a pair of contra-rotating star wheels of an interleaving machine; and

means mounted on the outer edge of each platform for conveying elongate strips of material transversely of the respective cigarette paper web to a p sition underlying the ungummed face of the respective web while advance of the web is interrupted so that the strips are directed generally parallel to the longitudinal direction of the web and the c ntral regions of the strips become attached to the w b but their extremities remain unattached, said contacting means being arranged to operate in relation to the position of advance of the web so that a strip passes the respective cutting station on alternate cutting cycles and the cutting station cuts through the attached central region of each strip.

In a preferred aspect of the method, the web of cigarette paper has an ungummed face and a face gummed along one edge and the elongate strips of material are adhered to the uncoated face of the web. The web of cigarette paper may be advanced through the cutting station so as to cut the web transversely and so that the individual cigarette papers are cut off lengthwise. In a particular preferred method there are adhered to the web at each alternate cycle strips of material coated in their central p rtion with an adhesive and uncoated at their extremities, the strips being adhered parallel to the web and positioned so that the cutting station cuts the adhered central region. According to a preferred f ature of the aforesaid method a second web of material having on one face a line of contact adhesiv down its centre and its extremities uncoated with adhesive is advanced stepwise towards the web of cigarette paper in a direction transversely of the paper web, strips of the second web are severed and their adhesive coated face is contacted with the web of cigarette paper to bring about adhesion thereto. The second web may be cut by means of a knife arranged for vertical reciprocation in timed relation to the movement of the second web so that one strip of material is cutt off for every two cigarette papers cut by the cutting station. The web of material may be advanced to the knife from a feed station disposed to one side of the web of cigarette paper and a transfer member may be disposed below the level of the web of cigarette paper and arranged to receive cut strips of material, move them transversely of the web of cigarette paper to a position und rlying the paper web and preferably to a p sition und rlying or adjacent to its gummed edg and to raise the strips of material into contact with the web of cigarette paper. Conveniently the transfer operation may be carried ut by applying vacuum to the transfer member in th form of a sucti n box having openings in its top face while the suction box is in a first sition below the strip cutting knife so that a cut strip of material is held on the top face of the suction box, moving the suction box generally horizontally transversely of the web of cigarette paper so that the strip of material lies underneath the web of cigarette paper adjacent the gummed edge thereof, raising the transfer box to bring the strip of material into contact with the web of cigarette paper and releasing the vacuum, and returning the suction box to the first position.

Preferably the material which is applied stripwise to the cigarette paper web is incombustible i.e., it is substantially unaltered by contact with burning tobacco. The material which we use is a strip of aluminium foil twice the length of the intended strips or tabs on the final cigarette papers and about 4-7 cms long and 3-5 mm in width which has a central adhesive zone 2-3.5 cms long and is intended for use with cigarette papers 6-10 cms in length and 3.5-5.5 cms in width.

The web of cigarette paper may be advanced by rotation of a continuously rotating hollow roller formed with a plurality of suction ports opening to its cylindrical surface and advance of the web of cigarette paper web is interrupted by a friction member which is movable into contact with the web of cigarette paper to press it against a surface over which it passes. The cigarette papers are normally sold in the form of folded interleaved booklets, and for this purpose first and second webs of cigarette paper are advanced along parallel paths from respective supply bobbins to respective cutting stations where the cigarette papers are cut, longitudinal creases are formed in the cut cigarette papers by respective creasing means and the creased cigarette papers are fed serially into notches of a respective one of a pair of contra-rotating star wheels of an interleaving machine, each web of cigarette paper being contacted with strips of material by the method previously described.

The intended supply bobbin may carry a web of cigarette paper having an ungummed face and a face gummed along one edge in which case the contacting means will contact the strips with the uncoated face of the web. The cigarette paper advance means may forward the cigarette paper through the cutting station in steps greater than the width of the web so that the web is cut off transversely to produce the cigarette papers lengthwise. In a particularly preferred apparatus the contacting means is arranged at each alternate cycle to adhere strips of material coated with adhesive in their central region and uncoated at their extremities, the strips being adhered parallel to the web and the contacting means being arranged to operate in relation to the position of advance of the web so that a strip passes the cutting station at each alternate cycle and the cutting station cuts through the attached central reg i n of the strip. The apparatus mentioned above may be pr vid d with a platform over which the web of cigarett paper is advanced to the cutting station, means d fining a generally rectangular op ning dispos d adjacent the end f the platform near st to th cutting station, a h llow sucti n roller which in use

rotates continuously positioned so that a small arcuat segment thereof projects through said rectangular opening, the cylindrical surface of the roller having suction p rts arranged to grip and advance the web of cigarette paper on connection of the roller to a vacuum, and a stop finger positioned at the end of the platform remote from the cutting station which is normally lifted therefrom but which is arranged to be lowered and press against the web of cigarette paper to interrupt its advance. The cutting station may be attached to the platform at a position between the suction roller and the stop finger in closely spaced relationship to the cigarette paper web, means for supplying the second web of material to the cutting station in indexed steps each corresponding to the width of one strip, means defining an aperture in the platform opposite the cutting station over which aperture the cigarette paper web passes, and a transfer member arranged in a first position to receive a strip cutting station, to move the strip underneath the web into the aperture and to raise the strip into contact with the web of cigarette paper, and thereafter to return to the first position.

The paper web may be arranged, as it passes the strip cutting station, to pass underneath an overlying pressure plate. The transfer member may be hollow and may have suction ports in its top face, vacuum being applied to the transfer member in the first position to retain a strip cut by the strip cutting station in position on the transfer member, and being released when the transfer member contacts the strip with the paper web.

The product of the foregoing process and apparatus is believed to be novel *per se.* In a yet further aspect, the invention provides a cigarette paper having a line of glue or paste deposited on one face of the paper along one longitudinal edge and a strip of incombustible foil directed longitudinally of the cigarette paper and secured to the uncoated face of the paper adjacent the glued edge or between the glued edge and the medial longitudinal line of the cigarette paper, an end portion of the foil being adhesively secured to an end cigarette paper intended in use to be inserted in the mouth of the smoker and a tip portion of the foil being free for bending away from the rolled cigarette to form a ready-attached handle or holder therefor.

An embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which like parts are denoted by the same numerals, and

Figure 1 is a diagram showing the application of strips of incombustible material to an advancing web of cigarette paper, and the cutting of individual cigarette papers therefrom and Figure 1a is a diagrammatic section on line A-A of Figure 1;

Figure 2 is a diagram showing the application of strips of incombustibl material to webs of cigarette paper in an interleaving machine;

Figure 3a is a diagram of a number of notional cigarett papers passing along first and second channels to an int rleaving station and Figure 3b is a view of the int rleaved papers;

Figure 4 is a vi w of a cigar tte rolled, using ne of the cigarette papers and showing th in-built handle;

Figure 5 is a front view of a machine for making interleaved cigarette papers;

Figur 6 is a top perspective view of the interleaving machine;

Figure 7 is an enlarged perspective view of the rear part of the interleaving machine showing a cigarette paper feed mechanism and one side of a feed station for incombustible material in web form;

Figure 8 is an enlarged perspective view of the front part of the interleaving machine showing the other side of the incombustible web mechanism and part of the associated star wheel;

Figure 9 is an enlarged front perspective view of one side of the interleaving machine showing the track over which a web of cigarette paper travels to the cutting and folding stations of the machine;

Figure 10 is a view transversely of the web of cigarette paper showing part of the platform and the upper part of the feed station for incombustible material;

Figure 11 is a view as Figure 10 but with the pressure plate removed;

Figures 12(A), 12(B), and 12(C) are views like Figure 10 but with both pressure plate and paper web removed to show successive stages in the cutting of the incombustible web and of the adhesion of strips to the paper web;

Figure 13 is a side view of the foil cutting and attachment station with one of the side plates partly broken away to show the working parts; and

Figure 14 is a diagrammatic end view of the foil cutting and attachment station.

In Figure 1, a platform 10 has adjacent its discharge end 10a a rectangular opening 12 through which protrudes an arcuate segment of a hollow roller 13 formed in its cylindrical surface with suction ports 14 and continuously rotated in the direction of the arrow 15. The supply end 10b of the platform has above it a stop finger 16 mounted on an arm 17 for movement towards or away from the platform as indicated by the arrow 18. Cigarette paper 19 in web form is advanced over the platform 10 by the continuously rotating roller 13 which is connected to vacuum and engages the undersurface of the web. The web 19 travels between the platform 10 and the stop finger 16 which is normally spaced therefrom to allow the web to advance, but which is cyclically lowered into contact with the web to arrest it so that the web 19 advances in a series of indexed steps b_1 to b_4 defining the length of a cigarette paper. When the web is arrested the roller 13 can continue to rotate and slippage takes place. As is conventional in cigarette paper manufacture the cigarette paper has a edge 20 gummed on one face and the cigarette paper advances over the platform 10 with the gum line facing upwardly. The discharge end 10a of the platform has a cutting knife 21 mounted for vertical recipr cation as indicated by arrow 22 and normally spaced upwardly from the platform 10 to allow the web 19 to advance th rebetween. When th web 19 has be n arrested by the action of the stop finger 16 the knife 21 guillotines ff a pr truding portion of the web 19 to defin cigarett papers 23.

A second web 24 of aluminium foil or other inc mbustible material is advanced in indexed small

st ps transversely of th cigarette paper web 19 by means of rollers 25 and 26 and a protective backing she t 27 is removed to expos n th upper fac f the second web a strip 28 of pressure-sensitive adh sive, the edges 29 f the incombustible w b being unc ated. The inc mbustibl web 24 is indexed one step for each alternate step of the cigarette paper web 19 and a cutting blade 30 mounted for vertical reciprocation as indicated by arrows 31 cuts off successive long narrow strips 32 of the incombustible web. The incombustible web 24 leaves rolles 25 and 26 in a horizontal attitude and and at a level slightly below that at which the web 19 travels ov r the platform 10 and is received on a transfer member 35 (Figure 1a) which is initially in the position shown in solid lines just beyond the gummed dge 20 of the web 19. The member 35 is hollow and is connected through a rotary control valve to a vacuum line. It has an apertured top face 36 in which a plurality of suction ports are defined by a serpentine wire 37 or other suitable means so that when vacuum is applied to the transfer member in the position shown in solid lines the cut strip 32 is held flat against the top face of the transfer member but is not free to enter it. The transfer member is operated at alternate cycles when the web 19 has been arrested to move the strip 32 underneath the web to the position shown in dotted lines and then to lift the strip 32 into contact with the paper web as shown in the chain-dotted lines, a pressure plate 40 overlying the web 19 to support the web 19 as the strip 32 is pressed against it. The strip 32 therefore becomes adhered by its self-adhesive central region to the uncoated lower face of the web of cigarette paper which becomes the outer surface of the resulting cigarette and is adhered parallel to web 19 as shown. The horizontal travel of the transfer member 35 will normally be kept as small as possible so that the strip 32 is adhered adjacent the gummed edge 20, typically 5 mm therefrom. However, there is no practical limitation on the transverse location of the strip 32 n the web 19 other than that imposed by the requirement for the strip to appear on the outside of the resulting rolled cigarette, but it is normally preferred that the transverse spacing of the strip 32 from the gummed edge 20 is no more than a/2 where a is the width of the web 19.

As is apparent from Figure 1, the adhered strip 32 advances towards the discharge end 10^a of the platf rm where it is cut in two by the knife 21 as the cigarette papers 23 are guillotined off. The length C of the tab 32' or 32" adhered to the cigarette paper web is conveniently 25-50% of the length b_1 of the cigarette paper, in which case the width of the web 24 should be 2C. The pass line of the web 24 should preferably be an integral number of indexed steps of the web 19 from the line of action of the cutting knife 21 so that the strips 32 are cut symmetrically. The cigarette paper 23 has been cut off at the transvers line b_1-b_2 so that a tab 32' projects forwardly from its trailing edg . At the next cycle the knife 21 will cut along the transverse b_2-b_3 to form a cigarette paper having a tab 32" projecting backwardly from its leading edge. On a third cycle a fresh strip 32 will be cut and the resulting cigarett pap r will be lik th cigarette paper 32. The cutting station therefore produc s cigarette papers in which the tabs 32' and 32" of incombustible material on successive cigarette papers are in staggered r lationship, which has the advantage that it facilitates th packing f th cigar tt papers into bo klets in which the successive leaves or individual papers lie flat. Furthermore, the cut ends of the tab 32' or 32" coincide with the ends of the cigarette papers, giving the product a clean and attractive appearance.

Our experiments have been carried out using dulled aluminium foil 0.04 cms thick and coated with an acrylic permanent adhesive. We have found that the foil strips can be cut and adhered to the paper at a high speed which makes the mass production of the cigarette papers economic and surprisingly that the unadhered free ends 29 of the resulting tabs 32' and 32" lie flat against the face of the cigarette paper and remain sufficiently undistorted during subsequent creasing and interleaving that these operations can be carried out on conventional machinery. This advantageous result was not something which could have been predicted in advance because in the Harrington cigarette papers, having wires along the edge the cutting operation distorts the wires and machine interleaving is impeded.

Figure 2 shows the general lay-out of a machine for cutting individual sheets of cigarette paper from web and interleaving them. First and second webs 19 and 19' of cigarette paper on bobbins 50 and 50' are advanced continuously by pairs of continuously rotating rollers 51, 51' onto respective platforms 10 and 10' and thence along parallel paths to paper cutting blades 21, 21'. Each platform has attached thereto a respective strip cutting and attachment station 52, 52' including a supply bobbin 53, 53' for incombustible material in the form of foil which is advanced in small indexed steps by rollers 25, 26 and 25', 26' respectively. The paper webs 19 and 19' are cut by respective paper cutters 21, 21' and thence pass to a respective one of a pair of contra-rotating star wheels 54, 54' where they are interleaved. It is preferred that the first and second cutting and attachment stations 52 and 52' are arranged to deposit a strip 32 on the web 19 or 19' in alternate cycles of advance of the webs 19 and 19' because, as is apparent from Figure 3a, this gives pairs of leaves 23a, 23b .... 23i, 23j which can be folded upwardly along their longitudinal central lines in the view shown and interleaved to give a booklet of, for example, 30-100 interleaved sheets. In Figure 3b it is apparent that the sheets 23 are fed into successive notches of a star wheel with tabs 32' and 32" of successive sheets in staggered relationship as shown. As the sheets are interleaved, the booklet being built up has the tabs distributed evenly over its ends so that is lays flat during subsequent packaging operations.

Figure 4 shows a cigarette rolled using a paper made as described abov , with the adhered end portion 28 and the unadher d portion 29 bent outwardly to form an attached handle for the cigarette.

In Figures 5 and 6 which are a front view of a practical embodiment of the machine there may be seen the paper bobbins 50, 50' and star wheels 54, 54'

previously referred to, the foil bobbins 53, 53' and the foil cutting and application stations 52, 52'. Cigarette papers 23, 23' cut by cutting blades 21, 21' pass t creasing stations 60, 60' where they are urged downwardly by reciprocated creasing blades 61, 61' into a l ngitudinal gap betw en pairs f plates 63, 63'. The partly folded cigarette papers are forwarded downwardly by sets of rollers 64 so that they serially enter the notches in star wheels 54, 54' where the creased folded cigarette papers are opened out ready for interleaving to take place by suction applied to the star wheels in conventional manner. Interleaved cigarette papers 65 pass from the star wheels to a delivery chute 66 and individual booklets are defined by strips of cardboard or like material inserted at regular intervals from a supply bobbin 67 into the stream of cigarette papers 65, also as conventional in the cigarette paper manufacturing art.

In Figure 7 there may be seen the web 19 travelling downwardly from its supply bobbin, the stop fingers 16 having been lowered into contact with the end 10b of the platform to arrest the web. Rollers 57 continue to rotate and a loop 70 of paper forms. A drive shaft 71 for the foil cutting and attachment station 52 extends from the body of the machine to the station 52 where it drives shaft 72 of the station 52 by 2:1 reduction gearing. As apparent from Figures 8 and 9 the other end of shaft 72 projects through side plate 75 of station 52 and carries an arm 73 and a cam 74. A follower wheel 74a on the arm 73 engages the cam 74. The arm 73 is connected at its tip 73a to a pawl assembly 76 which engages a toothed drive wheel 77 for the roller 26. As shaft 72 rotates the arm 73 is oscillated and the roller 26 is indexed stepwise by the wheel 77 to advance the web 24 of incombustible material.

Figure 10 is a view from above of one of the paper web tracks with the pressure plate 40 in position, and Figure 11 is a similar view with the pressure plate removed showing the web 19 to whose underside a tab 32 has been attached. In Figures 12(A) to 12(C) the web 19 is removed to show the action of the transfer member 35. In Figure 12(A) the web of incombustible material is being advanced with the suction opening 36 in the top face of the transfer member 35 at rest below it, awaiting the full length of the web to be exposed. In Figure 12(B) the blade 30 descends to cut the foil from both edges simultaneously towards the middle thereof and the transfer member 35 rises to take up a position directly under the incombustible material, at which time suction is arranged to be applied to retain the cut strip 32 of incombustible material. The transfer member then moves transversely of the paper web, carrying the strip 32 with it and is then ready to apply the strip 32 to the advancing web of cigarette paper.

In Figures 13 and 14 which show the details of the foil cutting and transfer station, the foil cutting knife 30 is supported at its ends on a pair of arcuate arms 80 and 81 pivoted to side plates 75 and 75a respectively at pivots 82. The arms extend transvers ly and d wnwardly and carry at their l wer nds foll wer rollers 83 and 84 which ngage r spective cam plates 86 and 87 mounted on shaft 72 for rotation therewith. As shaft 72 is rotated the interaction of cam plates and the follow r rollers actuates arms 80 and 81 thr ugh the cam plates and follower rollers and th reby lowers the knif 30 from an initial raised position to the l wer d position shown so as to cut off a strip 32 (Figure 1) at th appropriate tim . The transfer member 35 is fixed to one end of a generally horizontal link 90 whose other end is pivoted at 92 to the tip of an arm 93 mounted on a spindle 94 which is a common spindle for the cam follower arms (omitted from Figure 14 for the sake of clarity). A follower roller 95 pivoted to the arm 93 is guided by a cam plate 96 mounted on the shaft 72 for rotation therewith and is effective to advance the transfer member 35 from its first position to a position underlying the web and to allow it to return to the first position. A further follower roller 98 positioned part way along the link 90 engages a cam plate 99 secured to the shaft 72 for rotation therewith and effects raising of the transfer member 35 in the appropriate angular position of the shaft 72. The foil receiving position of the transfer member 35 and of the associated arm and link is shown in Figure 13 in phantom and the foil adhesion position thereof is shown in solid lines.

A rotary valve 100 in the foil cutting and transfer station is actuated by rotation of the shaft 72 and in the appropriate angular positions of that shaft connects the interior of the transfer member through a port 101 to a suction of vacuum line (not shown). By this means the suction can be applied to the transfer member when the foil is cut and can be released when the cut foil is contacted with the cigarette paper web.

It will be appreciated that various modifications may be made to the embodiment described above without departing from the invention, the scope of which is defined in the appended claims.

CLAIMS

1. In a method for making generally rectangular cigarette papers by cyclically advancing a web of cigarette paper from a supply bobbin through a cutting station until a predetermined portion of the web protrudes, interrupting the advance of the web and cutting off the protruding portion of the web to form a cigarette paper, the improvement which comprises contacting one face of the web while the advance of the web is interrupted with elongate strips of material coated along part of their length with adhesive so that the adhesive coated portion of each strip attaches thereto and an uncoated portion remains unattached, the strips being directed parallel to the major dimension of the cigarette papers and positioned adjacent an end thereof intended in use to constitute the mouth end of the cigarette, so that the unattached region of the strip can be bent away from the cigarette to form a ready-attached holder th refor.

2. A m thod according t Claim 1, wherein th web of cigarette paper has an ungummed face and a face gummed along one dg and the elongate strips of material are adhered to th uncoated face of the web.

3. A method according t Claim 1 or 2, wh rein the web of cigarette paper is advanced through the

cutting stations so as to cut the web transversely so the individual cigar tt papers are cut off lengthwise.

4. A method according to Claim 3, wherein there are adhered to the w b at each alternat cycle strips of material coated in th ir central portion with an adhesive and uncoated at their extremities, the strips being adhered parallel to the web and positioned so that the cutting station cuts the adhered central reg- i n.

5. A method according to Claim 4, further comprising advancing a second web of material having on one face a line of contact adhesive down its centre and its extremities uncoated with adhesive st pwise towards the web of cigarette paper in a direction transversely of the web, severing strips of th second web and contacting the adhesive coated face of the severed strips with the cigarette paper web to bring about adhesion thereto.

6. A method according to Claim 5, wherein the second web is cut by means of a knife arranged for vertical reciprocation in timed relation to the move- m nt of the second web so that one strip of material is cut off for every two cigarette papers cut by the cutting station.

7. A method according to Claim 2 and Claim 5 or 6, wherein the web of material is advanced to the knife from a feed station disposed to one side of the web of cigarette paper and a transfer member disposed below the level of the web of cigarette paper is arranged to receive cut strips of material, move them transversely of the web of cigarette paper to a position underlying or adjacent to its gummed edge and raise the strips of material into contact with the web of cigarette paper.

8. A method according to Claim 7, which comprises ar plying vacuum to a transfer member in the form of a suction box having openings in its top face while the suction box is in a first position below the strip cutting knife so that a cut strip of material is held on the top face of the suction box, moving the suction box generally horizontally transversely of the web of cigarette paper so that the strip of material lies underneath the web of cigarette paper adjacent the gummed edge thereof, raising the transfer box to bring the strip of material into contact with the web of cigarette paper and releasing the vacuum, and returning the suction box to the first position.

9. A method according to Claim 8, wherein a protective backing sheet is removed from the web of material to expose the self-adhesive central region thereof before the web of material reaches the strip cutting knife.

10. A method according to any preceding claim, wherein the web of cigarette paper is advanced by rotation of a continuously rotating hollow roller formed with a plurality of suction ports opening to its cylindrical surfac and advanc of the web of cigarette paper is int rrupted by a friction member which is movable into contact with the web of cigarette paper to press it against a surface ov r which it passes.

11. A method according to any pr ceding claim, wherein the strips are of incombustible material (as hereinb f re defined).

12. A method according to any preceding claim, wher the strips of incombustible material are of aluminium foil.

13. A method for making interleaved sheets of cigarett paper, wherein first and second webs of cigarette paper are advanced along parallel paths from respective supply bobbins to respective cutting stations where the cigarette papers are cut, longitudinal creases are formed in the cut cigarette papers by respective creasing means and the creased cigarette papers are fed serially into notches of a respective one of a pair of contra-rotating star wheels of an interleaving machine and each web of cigarette paper is contacted with strips of material by the method claimed in any of Claims 1 to 12.

14. A method according to Claims 4 and 13, wherein the strips of material are adhered to the first and second webs of cigarette paper in staggered relationship.

15. A method for making interleaved sheets of cigarette paper having strips of material adhered thereto to form ready-attached holders for cigarettes substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

16. Apparatus for making generally rectangular cigarette papers having ready attached holders comprising:

a supply bobbon for a web of cigarette paper;

a cutting station for the web of cigarette paper;

means for advancing the web of cigarette paper through the cutting station;

means for cyclically interrupting the advance of the web so that the cutting station can cut off the protruding portion of the web to form a cigarette paper;

means for contacting elongate strips of material coated with adhesive along part of their length with one face of the web while the advance of the web is interrupted so that the strips are directed generally parallel to the major dimension of the resulting cigarette papers and the adhesive coated regions of the strips become attached to each cigarette paper adjacent one end thereof intended in use to constitute the mouth end of the cigarette so that the unattached portion of the strip can be bent away from the cigarette to form a ready-attached handle therefor.

17. Apparatus according to Claim 16, wherein the intended supply bobbin carries a web of cigarette paper having an ungummed face and a face gummed along one edge and the contacting means contacts the strips with the uncoated face of the web.

18. Apparatus according to Claim 16 or 17, wherein said cigarette paper advance means advances the cigarette paper web through the cutting station in steps greater than the width of the w b so that th cutting station cuts the cigarette pap rs off lengthwise.

19. Apparatus according to Claim 18, wherein the contacting m ans is arranged at each alternate cycle to adhere strips of material coat d with adhesive in their central region and uncoated at their xtremities, th strips being adh red parallel to th web and the contacting m ans being arrang d to

operate in relation to the position of advance of the web so that a strip passes the cutting station at each alternate cycle and the cutting station cuts through the attached central region of the strip.

20. Apparatus according to any of Claims 16 to 19, further comprising a platform over which the web of cigarette paper is advanced to the cutting station;

means defining a generally rectangular opening disposed adjacent the end of the platform nearest to the cutting station;

a hollow suction roller which in use rotates continuously positioned so that a small arcuate segment thereof projects through said rectangular opening, the cylindrical surface of the roller having suction ports arranged to grip and advance the web of cigarette paper on connection of the roller to a vacuum, and a stop finger positioned at the end of the platform remote from the cutting station which is normally lifted therefrom but which is arranged to be lowered and press against the web of cigarette paper to interrupt its advance.

21. Apparatus according to Claim 20, further comprising a strip cutting station attached to the platform at a position between the suction roller and the stop finger in closely spaced relationship to the cigarette paper web, means for supplying the second web of material to the cutting station in indexed steps each corresponding to one strip, means defining an aperture in the platform opposite the cutting station over which the cigarette paper web passes, and a transfer member arranged in a first position to receive a strip cut by the cutting station, to move the strip underneath the paper web into the aperture, to raise the strip into contact with the paper web, and thereafter to return to the first position.

22. Apparatus according to Claim 21, wherein the paper web is arranged, as it passes the strip cutting station, to pass underneath a pressure plate.

23. Apparatus according to Claim 21, or 22, wherein the transfer member is hollow and has suction ports in its top face, vacuum being applied to the transfer member in the first position to retain a strip cut by the strip cutting station in position on the transfer member, and being released when the transfer member contacts the strip with the paper-web.

24. Apparatus according to Claim 21, 22, or 23, further comprising means for removing a protective sheet from a self-adhesive face of the second web before the second web is cut to form said strip.

25. Apparatus for making interleaved booklets of cigarette papers each having a strip of material adhered at one end to an end of the cigarette paper and unadhered at the other end so that the strip can be bent away from the cigarette paper to form an integral holder therefor, comprising:

supply bobbins for first and second webs of cigarette paper each having an ungummed face and a face gummed along one edge;

means for advancing said first and said second webs of cigarette paper with their gummed edges facing upwardly and outwardly over a first platform and over a second platform parallel to said first platform;

first and second cutting stations at the end of the first and second platforms through which the web of cigarette paper is advanced;

means for cyclically interrupting the advance of said first and second webs over their respective platforms so that the first and second cutting stations can cut off a length of web protruding therefrom to form a cigarette paper;

means for forming longitudinal creases in cigarette papers cut from the first and second webs and for feeding them serially into notches of a respective one of a pair of contra-rotating star wheels of an interleaving machine; and

means mounted on the outer edge of each platform for conveying elongate strips of material transversely of the respective cigarette paper web to a position underlying the ungummed face of the respective web while advance of the web is interrupted so that the strips are directed generally parallel to the longitudinal direction of the web and the central regions of the strips become attached to the web but their extremities remain unattached, said contacting means being arranged to operate in relation to the position of advance of the web so that a strip passes the respective cutting station on alternate cutting cycles and the cutting station cuts through the attached central region of each strip.

26. Apparatus according to Claim 25, wherein a strip conveyor on the first and second platforms are each arranged to operate when the other strip conveyor is inoperative whereby the strips pass the first cutting station and the second cutting station in alternate cutting cycles.

27. A cigarette paper having a line of glue or paste deposited on one face of the paper along one longitudinal edge and a strip of incombustible foil directed longitudinally of the cigarette paper and secured to the uncoated face of the paper adjacent the glued edge or between the glued edges and the medial longitudinal line of the cigarette paper, an end portion of the foil being adhesively secured to an end cigarette paper intended in use to be inserted in the mouth of the smoker and a tip portion of the foil being free for bending away from the rolled cigarette to form a ready-attached handle or holder therefor.

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